Annex 5

Illustrative Examples: Calculating the Effect of Credit Risk Mitigation under Supervisory Formula

Some examples are provided below for determining how collateral and guarantees are to be recognised under the SF.

Illustrative Example Involving Collateral - proportional cover

Assume an originating bank purchases a €100 securitisation exposure with a credit enhancement level in excess of K_{IRB} for which an external or inferred rating is not available. Additionally, assume that the SF capital charge on the securitisation exposure is €1.6 (when multiplied by 12.5 results in risk weighted assets of €20). Further assume that the originating bank has received €80 of collateral in the form of cash that is denominated in the same currency as the securitisation exposure. The capital requirement for the position is determined by multiplying the SF capital requirement by the ratio of adjusted exposure amount and the original exposure amount, as illustrated below.

Step 1: Adjusted Exposure Amount (E*) = max {0, [E x (1 + He) - C x (1 - Hc - Hfx)]}

E* = max {0, [100 x (1 + 0) - 80 x (1 - 0 - 0)]} = € 20

Where (based on the information provide above):

E* = the exposure value after risk mitigation (€20)

E = current value of the exposure (€100)

He = haircut appropriate to the exposure (This haircut is not relevant because the originating bank is not lending the securitisation exposure in exchange for collateral).

C = the current value of the collateral received (€80)

Hc = haircut appropriate to the collateral (0)

Hfx= haircut appropriate for mismatch between the collateral and exposure (0)

Step 2: Capital requirement = E* / E x SF capital requirement

Where (based on the information provide above):

Capital requirement = €20 / €100 x €1.6 = €0.32.

Illustrative Example Involving a Guarantee - proportional cover

All of the assumptions provided in the illustrative example involving collateral apply except for the form of credit risk mitigant. Assume that the bank has received an eligible, unsecured guarantee in the amount of €80 from a bank. Therefore, a haircut for currency mismatch will not apply. The capital requirement is determined as follows.

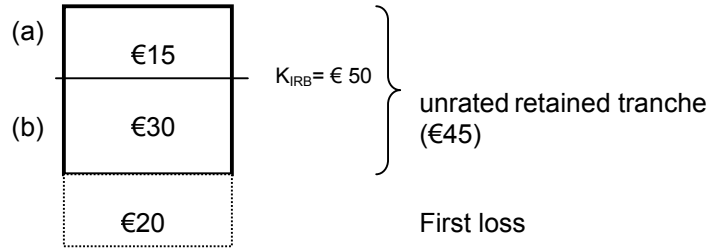
- The protected portion of the securitisation exposure (€80) is to receive the risk weight of the protection provider. The risk weight for the protection provider is equivalent to that for an unsecured loan to the guarantor bank, as determined under the IRB approach. Assume that this risk weight is 10%. Then, the capital charge on the protected portion would be; €80 x10% x 0.08= €0.64.
- The capital charge for the unprotected portion (€20) is derived by multiplying the capital charge on the securitisation exposure by the share of the unprotected portion to the exposure amount. The share of the unprotected portion is: €20 / €100 = 20%. Thus, the capital requirement will be; €1.6 x 20% = €0.32.

The total capital requirement for the protected and unprotected portions is:

€0.64 (protected portion) + €0.32 (unprotected portion) = €0.96 .

Illustrative example - the case of credit risk mitigants covering the most senior parts

Assume an originating bank that securitises a pool of loans of €1000. The K_{IRB} of this underlying pool is 5% (capital charge of €50). There is a first loss position of €20. The originator retains only the second most junior tranche: an unrated tranche of €45. We can summarise the situation as follows:



1. Capital charge without collateral or guarantees

According to this example, the capital charge for the unrated retained tranche that is straddling the K_{IRB} line is sum of the capital requirements for tranches (a) and (b) in the graph above:

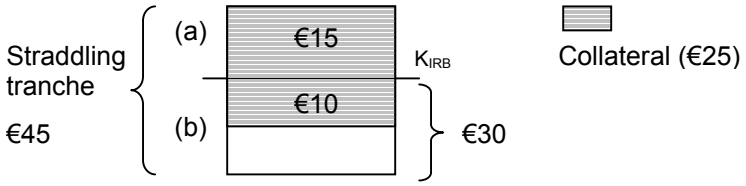
(a) Assume the SF risk weight for this subtranche is 820%. Thus, risk weighted assets are €15 x 820% = €123. Capital charge is €123 x 8%= €**9.84**

(b) The subtranche below K_{IRB} must be deducted. Risk weighted assets: €30 x1250% = €375. Capital charge of €375 x 8% = €**30**

Total capital charge for the unrated straddling tranche = €9.84 + €30 = €39.84

2. Capital charge with collateral

Assume now that the originating bank has received €25 of collateral in the form of cash that is denominated in the same currency as the securitisation exposure. Because the tranche is straddling the K_{IRB} level, we must assume that the collateral is covering the most senior subtranche above K_{IRB} ((a) subtranche) and, only if there is some collateral left, the coverage will be applied proportionally to the subtranche below K_{IRB} ((b) subtranche). Thus, we have:



The capital requirement for the position is determined by multiplying the SF capital requirement by the ratio of adjusted exposure amount and the original exposure amount, as illustrated below. We must apply this for the two subtranches.

(a) The first subtranche has an initial exposure of €15 and collateral of €15, so in this case it is completely covered. In other words:

Step 1: Adjusted Exposure Amount

E* = max {0, [E x (1 + He) - C x (1 - Hc - Hfx)]} = max {0, [15 - 15]} = € 0

Where:

E* = the exposure value after risk mitigation (€15)

E = current value of the exposure (€15)

C = the current value of the collateral received (€15)

He = haircut appropriate to the exposure (not relevant here, thus €0)

Hc and Hfx = haircut appropriate to the collateral and that for the mismatch between the collateral and exposure (to simplify, €0)

Step 2: Capital requirement = E* / E x SF capital requirement

Capital requirement = 0 x €9.84 = € **0**

(b) The second subtranche has an initial exposure of €30 and collateral of €10, which is the amount left after covering the subtranche above K_{IRB}. Thus, these €10 must be allocated in a proportional way to the €30 subtranche.

Step1: Adjusted Exposure Amount

E* = max {0, [30 x (1 + 0) - 10 x (1 - 0 - 0)]} = €20

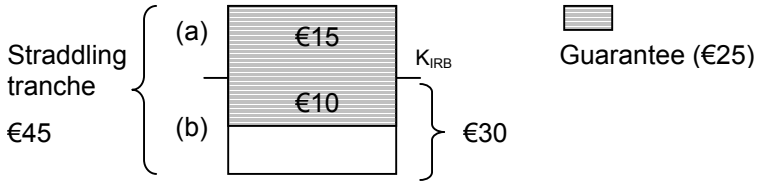
Step 2: Capital requirement = E* / E x SF capital requirement

Capital requirement = €20/€30 x €30 = €**20**

Finally, the total capital charge for the unrated straddling tranche = €0 + €20 = €20

3. Guarantee

Assume now that instead of collateral, the bank has received an eligible, unsecured guarantee in the amount of €25 from a bank. Therefore the haircut for currency mismatch will not apply. The situation can be summarised as:



The capital requirement for the two subtranches is determined as follows:

(a) The first subtranche has an initial exposure of €15 and a guarantee of €15, so in this case it is completely covered. The €15 will receive the risk weight of the protection provider. The risk weight for the protection provider is equivalent to that for an unsecured loan to the guarantor bank, as determined under the IRB approach. Assume that this risk weight is 20%.

capital charge on the protected portion is €15 x 20% x 8%= €**0.24**

(b) The second subtranche has an initial exposure of €30 and guarantee of €10. Accordingly, the protected part is €10 and the unprotected part is €20.

- Again, the protected portion of the securitisation exposure is to receive the risk weight of the guarantor bank.

  capital charge on the protected portion is €10 x 20% x 8%= € **0.16**

- The capital charge for the unprotected portion is derived by multiplying the share of the unprotected portion to the original capital charge. The share of the unprotected portion is: €20 / €30 = 66.7%.

  capital charge on the unprotected portion is 66.7% x €30 = €**20**

  (or equivalently €20 x 1250% x 8%= €20)

Total capital charge for the unrated straddling tranche = **€0.24** (protected portion, above K_{IRB}) **+ €0.16** (protected portion, below K_{IRB}) **+ €20** (unprotected portion, below K_{IRB}) **= €20.4**